



Atty. Dkt. No. 1491-148

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/530,014
Title: Multiple Plate Combustor
Filed: 09/06/2006
Inventor: Mehrzad Movassaghi
Priority date: 10/01/2002
Examiner: Alfred Basichas
Art Unit: 3749
Customer No. 32084

Confirmation No. 7860

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

VIA FED EX COURIER

SECOND SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Dear Sir:

In compliance with the Applicant's duty of disclosure set forth in 37 C.F.R. §1.56 and pursuant to the provisions of 37 C.F.R. §1.97, et seq., Applicant hereby submits this Supplemental Information Disclosure Statement for the purpose of bringing to the attention of the Examiner the information contained in the following references for consideration during the examination of the above-referenced patent application. The examiner is directed to the record of this case, which includes an International Search Report listing as relevant certain US patents not included here pursuant to.

Foreign Patents

<u>Patent/Publication No.</u>	<u>Issued/Published</u>	<u>1st Inventor</u>
WO 97/20171 A1	Mar. 03, 1996	Movassaghi
WO 00/12934 A1	Mar. 09, 2000	Chato
EP 0950853 A2	Oct. 20, 1999	Wood
WO 01/53750 A1	Jul. 26, 2001	Bodnar

Comments

Chato (WP 00/12934) discloses a pulse combustor in which a plurality of stackable annular plate units form a central "round space" Chato does not disclose cooling mechanisms, coolants, or coolant passageways. Chato is, in fact, silent on the issue of how heat is extracted from the annular units.

Wood (EP 0950853) is in a distinct field – burners employing fan forced fuel/air mixtures. In Wood's device a fuel/air mixture is blown through a plurality of stacked annular discs (Col 4:47; Fig. 1) the outer ends of which form flame ports. Col 5:15. Consequently, Wood is the inverse of the present invention, where combustion takes place in a central combustion chamber and exhaust gases and heat pass between the plates. Like Chato, Wood does not disclose the use of coolant or coolant passageways associated with the stacked discs. In fact, the Wood device has no need to cool the stacked discs because the heat is produced outside the stack assembly. Col 5:15.

Wood and Benton (WO 01/53750) both disclose incorporating a cone in a cylinder to form a distributor, the purpose of the cone being to create a pressure gradient so as to equalize the amount of air/fuel mixture expelled between the discs and out of the flame ports. Col 5:55; Fig 4. Wood also discloses the unequal spacing of discs to equalize the flow of fuel/air mixture. Col 5:47; Fig 5.

Both Wood and Benton are distinguished from the present application in that both disclose a burner in which the gas is under positive pressure provided by a fan or blower. The pressure in such a system is thus constant. By contrast, the present application is a pulse combustor where the internal pressures fluctuate between positive and negative throughout the pulse cycle. Thus, the recognition that the forces produced by the pulsating pressures of a pulse combustor are amenable to control by means of a cone and/or unequal plate spacing represents a very significant inventive step in the field of pulse combustors.

Movassagi (WO 97/20171) discloses a pulse combustor employing coolant passageways in two spaced apart walls that form a pulse combustor. Pg 4:32; Fig 2. The coolant passageways are provided by tubing coiled to form the two spaced apart outer walls. Fig 1.

In the present application Movassagi improves upon his prior art pulse combustor by providing for coils between the two spaced apart walls, the coils being referred to as "intermediate coils." The intermediate coils include coolant passages ways so that a coolant can be used to optimally extract heat from the plates. In the best known embodiment, coiled tubing is employed to form these intermediate coils.

The present application thus represents a significant improvement over the existing art by employing a plurality of intermediate coils having cooling passageways, the volume of the combustion chamber is increased, greater amounts of heat can be produced, and more of that heat can be extracted with the coolant as a result of the coolant passageways in the intermediate coils.


It is respectfully submitted that the Applicant's invention defines patentable subject matter over the teachings of the above references, alone or in any combination thereof. Accordingly, favorable action on this application is respectfully requested. A completed form PTO/SB/08A for the above references, is enclosed, as well as a copy of each of the foreign references.

This Disclosure Statement, filed in accordance with 37 C.F.R. §1.97, should not be construed as a representation that a search has been made, or that no other material information, as defined in 37 C.F.R. §1.56(a), exists.

Respectfully submitted,

FAMA Holdings, Ltd.
Applicant

Date: June 27, 2008

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Encls. - as listed above

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	10530014
Filing Date	2006-09-06
First Named Inventor	Mehrza Movassaghi
Art Unit	3749
Examiner Name	Alfred Basichas
Attorney Docket Number	1491-148

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

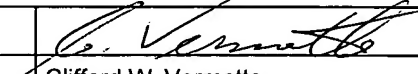
☐ See attached certification statement.

☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date (YYYY-MM-DD)	2008-06-27
Name/Print	Clifford W. Vermette	Registration Number	30018

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**